Attachment 6
Monitoring, Assessment and Performance Measures

Performance Measures & Monitoring

This project will continue the reconstruction of Reach 1A between State Street and Mason Street to improve flood flow conveyance. (Phase 1 of Reach 1A, from State Street to the pedestrian bridge upstream, will be constructed in Summer 2011). The project will enhance and expand the natural streambed features of lower Mission Creek and improve habitat for the endangered steelhead trout and other species. Benefits of the project also include improved flood protection, avoided costs of future flood damage, improved water quality and aesthetics, as well as the environmental benefits. The restoration portion of the project includes planting of native trees and vegetation.

The measures that will be used to quantify and verify project performance are included in Table 6-1. Monitoring and assessment of the project will begin after the completion of construction. Post-construction monitoring will include a biological component, as well as a hydraulic component, to ensure that the project is successful.

Project monitoring would include the following key elements:

- Monitoring of water quality will be performed monthly at the locations indicated in Figure 6-1.
- Flows will be measured during rainfall events to determine effectiveness of the stormwater management element of the project.
- For the first year after completion of construction, the stream bank corridors and habitat expansion zones will be monitored every 3 months.
- Monitoring of planted vegetation will be performed twice per year for 5 years.
- Any native trees that die within the first 5 years will be removed and replaced by the same species from 1-gallon locally-grown and collected stock. The local sponsor will maintain the planted vegetation for the life of the project.
- A qualified biologist (knowledgeable of steelhead and tidewater goby) shall monitor project construction in critical times (during dewatering of the creek or installation of pipes in the creek). Monitoring would be performed every week at the beginning of construction and every other week after establishment of the project construction.

Table 6-1 Project Performance Measures

Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Measures	Targets
To reconstruct the portion of Mission Creek that runs from Mason Street downstream to the pedestrian bridge to improve flood flow conveyance	Improve flood flow conveyance, enhance and expand natural streambed features	Removal of old bank revetment and reconstruction of the channel	Increased channel capacity The reporting required for labor compliance	Flows will be measured upstream and downstream of the project site to determine effectiveness of project	Incremental increase in urban flooding protection as project phases are complete
Improve water quality	Improve water quality for both human and animal benefit, as well as groundwater infiltration	Agency monitoring of water quality measurements and species recovery	Improved water quality and species viability	Monthly monitoring of water quality (dissolved oxygen, pH, temperature, turbidity, conductivity, salinity, total dissolved solids, indicator bacteria)	Overall improvement of water quality based on pre and post-construction monitoring comparisons
Improve habitat for steelhead trout and tidewater goby, both listed as endangered species	Increased habitat	Agency monitoring of habitat suitability	Completion of post-construction habitat assessment by agencies	Preconstruction habitat assessments are complete. Habitat monitoring will continue after each project phase is complete as described above	Improvement to habitat

Figure 6-1 Monitoring Location Map